Remarks

Claim Rejections under 35 U.S.C. 112

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regards as the invention.

In response to this rejection, applicant has amended claim 14 to more clearly recite the subject matter regarding the radial extension of the cutouts, and to more clearly and/or correctly recite related and other subject matter thereof.

It is submitted that the recited subject matter of claim 14 is now clear and definite under 35 U.S.C. 112, second paragraph. Reconsideration and withdrawal of the rejection of claim 14 are respectfully requested.

Claim Rejections under 35 U.S.C. 103

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Phister (U.S. Pat. No. 3,592,518) in view of at least one of Chang et al. (U.S. Pat. No. 6,942,388), Noda et al. (U.S. Pat. No. 6,073,537), or VanWyk (U.S. Pat. No. 3,938,868).

In response, applicant now traverses as follows:

Regarding claim 1, the claimed combined bearing comprises:

a cylindrical main body defining an axial hole and a first cutout therein, the axial hole spanning along an axis of the cylindrical main body for receiving a shaft therein, the first cutout spanning from an outer surface of the cylindrical main body to the axial hole; and

a first mating member, which has a same configuration as the first cutout and is inserted into the first cutout; wherein

the first mating member comprises ***an inner curved surface having a same radius of curvature as that of the axial hole and an outer curved surface having a same radius of curvature as that of the outer surface of the cylindrical main body, one of the main body and the first mating member comprising ceramic material, and the other of the main body and the first mating member comprising metal alloy.***

Phister discloses a bearing for an electronic motor. The bearing includes a fixed bearing (18) that is generally cylindrical and has a cylindrical opening (19), and a semicylindrical, movable bearing (20). The bearing (18) embodies a diametrical slot (21) halfway along a length thereof, and the slot (21) holds the bearing (20). An arcuate spring (22) hugs the bottom of a groove (23) provided partly in the bearing (18) and partly in the bearing (20).

Firstly, Phister ***does not disclose or suggest that a first mating member has a same configuration as a first cutout.*** Because the movable bearing (20) disclosed by Phister defines a groove (23) therein for hugging an arcuate spring (22), the movable bearing (20) does not ***have a same configuration*** as that of the cylindrical opening (19). From FIG. 4 of Phister, it can also be seen that a gap exists between the cylindrical opening (19) and the semicylindrical movable bearing (20).

Phister also does not disclose or suggest that the movable bearing (20) has ***an inner curved surface having a same radius of curvature as that of the axial hole and an outer curved surface having a same radius of curvature as that of the outer surface of the cylindrical main body.*** In addition, these features of claim 1 produce new and unexpected results. That is, because the first mating member has a same configuration as the first cutout and an inner curved surface having a same radius of curvature as that of the axial hole and an outer curved surface having a same radius of

curvature as that of the outer surface of the cylindrical main body, the first mating member is well engaged in the first cutout and does not need an extra arcuate spring for hugging the cylindrical main body. Accordingly, rotation of a rotatable shaft in the combined bearing of the present invention is stable. Further, the mating member is also relatively easy to manufacture. Chang et al., Noda et al., and VanWyk also fail to disclose or suggest the above-highlighted unique features of the present invention, and it is submitted that any combination of the four references also fails to disclose or suggest the above-highlighted unique features of the present invention.

Secondly, in the Office action it is stated that "***Phister does not disclose one of the main body and the first mating member comprising ceramic material, and the other of the main body and the first mating member comprising metal alloy***". That is, the present invention is different from the bearing disclosed by Phister. Chang et al., Noda et al., and VanWyk disclose that a first member is made of ceramic sintered material and a second member is made of metallic sintered material. However, the structures of the bearings disclosed by Chang et al., Noda et al., and VanWyk are quite different from that of the present invention. Further, any combination of these four references is not expressly suggested or implied by Chang et al., Noda et al., or VanWyk, because none of Chang et al., Noda et al., or VanWyk teaches or suggests that the ceramic sintered material and the metallic sintered material can be used in a combining bearing which has ***a first mating member that has a same configuration as that of the first cutout***.

For at least the above reasons, applicant submits that there is no suggestion or motivation in any of the cited references that it could be combined with one or more of the others to yield the invention of independent claim 1. That is, claim 1 is unobvious and patentable over

Phister in view of Chang et al., Noda et al., or VanWyk under 35 U.S.C. 103(a). Reconsideration and withdrawal of the rejection and allowance of claim 1 are requested.

Claims 2-13 directly or indirectly depend from independent claim 1. Therefore, claims 2-13 should also be allowable.

Regarding claim 14, the claimed combined bearing comprises:

a cylindrical main body defining an axial hole and ***a plurality of cutouts in communication with said axial hole at different axial positions, each of said cutouts radially extending through said main body within a 180 degree range;*** and

a plurality of mating members compliantly received in the corresponding cutouts, respectively, each of said mating members defining an inner curved surface conformable to said axial hole and an outer curved surface conformable to an exterior surface of said main body; wherein

at least one of said main body and said mating members is made of ceramic material while the rest are made of metal alloy.

Firstly, Phister does not disclose ***a plurality of cutouts in communication with said axial hole at different axial positions, each of said cutouts radially extending through said main body within a 180 degree range; and a plurality of mating members compliantly received in the corresponding cutouts.*** Further, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to modify the bearing disclosed by Phister to provide a plurality of cutouts, each for supporting a respective mating member. This is because the bearing (18) disclosed by Phister embodies the diametrical slot (21) halfway along the length thereof, and the slot (21) holds the bearing (20). An arcuate spring (22) hugs the bottom of the groove (23) provided partly in the bearing (18)

and partly in the bearing (20). In the bearing (18) of Phister, if there were a plurality of cutouts therein, this would also require a corresponding plurality of arcuate springs (22), so that each spring to (22) could hug the bottom of a corresponding groove (23) provided partly in the bearing (18) and partly in the bearing (20). In such case, a shaft received in the bearing of Phister would not be stable, and also the cost would increased. Therefore Phister teaches against a modification using the teachings of any one of Chang et al., Noda et al., or VanWyk whereby the above-highlighted unique features of the present invention might be obtained. That is, even if it were physically possible for the combination of references to yield the present invention, Phister teaches away from such combination and renders it unobvious.

Secondly, Phister also does not disclose or suggest ***each of said mating members defining an inner curved surface conformable to said axial hole and an outer curved surface conformable to an exterior surface of said main body.*** In addition, these features of claim 14 produce new and unexpected results. That is, because each of said mating members defines an inner curved surface conformable to said axial hole and an outer curved surface conformable to an exterior surface of said main body, the mating members are well engaged in the cutouts and do not need extra arcuate springs for hugging to the cylindrical main body. Accordingly, rotation of a rotatable shaft in the combined bearing of the present invention is stable. Further, the mating members are also relatively easy to manufacture. Chang et al., Noda et al., and VanWyk also fail to disclose or suggest the above-highlighted unique features of the present invention, and it is submitted that any combination of the four references also fails to disclose or suggest the above-highlighted unique features of the present invention.

Thirdly, in the Office action it is stated that "Phister does not disclose

one of the main body and the first mating member comprising ceramic material, and the other of the main body and the first mating member comprising metal alloy". Therefore, Phister also does not disclose ***at least one of said main body and said mating members is made of ceramic material while the rest is/are made of metal alloy***. That is, the present invention is quite different from the bearing disclosed by Phister. Chang et al., Noda et al., and VanWyk disclose that a first member is made of ceramic sintered material and a second member is made of metallic sintered material. However, the structures of the bearings disclosed by Chang et al., Noda et al., and VanWyk are quite different from that of the present invention. Further, any combination of these four references is not expressly suggested or implied by Chang et al., Noda et al., or VanWyk, because none of Chang et al., Noda et al., or VanWyk discloses or suggests that the ceramic sintered material and the metallic sintered material can be used in a combining bearing which has ***a plurality of cutouts in communication with said axial hole at different axial positions, each of said cutouts radially extending through said main body within a 180 degree range; and a plurality of mating members compliantly received in the corresponding cutouts.***

For at least the above reasons, applicant submits that there is no suggestion or motivation in any of the cited references that it could be combined with one or more of the others to yield the invention of claim 14. That is, claim 14 is unobvious and patentable over Phister in view of Chang et al., Noda et al., or VanWyk under 35 U.S.C. 103(a). Reconsideration and withdrawal of the rejection and allowance of claim 14 are requested.

In view of the above claim amendments and remarks, the subject application is believed to be in a condition for allowance, and an action to such effect is earnestly solicited.

Respectfully submitted,
Chin-Lung Wang

By
Wei-Te Chung

Registration No.: 43,325
Foxconn International, Inc.
P.O. Address: 1650 Memorex Drive, Santa Clara, CA 95050
Tel. No.: (408) 919-6137